

Margin Trading - A Theoretical Perspective

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The clients normally trade in securities based on the funds and the securities available with them. However, many markets offer a leverage mechanism called margin trading, which enables them to trade beyond the resources available with them. The margin trading, thus, helps to increase demand for and supply of securities and funds in the market and thereby improves liquidity and contributes to smooth price formation. Since Indian markets have a securities lending scheme (the scheme is currently under review) and the facility of short sales, which take care of supply of securities, this paper discusses the issue more in the context of supply of funds.

Meaning

Margin trading is simply trading in securities based on margin, i. e. a client deposits 'margin', which is usually a percent of value of the proposed transaction, and then borrows funds needed for purchase of securities or securities needed for sale of securities. This enables a client to purchase / sell securities / funds more than that he would otherwise have been able to do with his own resources.

Functions

The margin trading enables clients to trade more than that their own resources would permit and hence increases supply of and demand for securities / funds in the market. It thus contributes to liquidity by making higher trading volumes possible than it would have been otherwise possible. It helps in better price discovery by supporting larger supply of and demand for funds/ securities. Margin trading and trading of derivatives generally complement rolling settlement, where the time for round about transactions is limited to a day. This is why the markets having rolling settlement provide the facility of margin trading.

Motivation

The margin trading enables a client to purchase / sell more and thus increases his profits if the prices move on expected lines. It also amplifies his loss if the prices behave contrary to his expectations. This amplification effect emanating from leveraged nature of the transaction is the main motivation for a client to undertake margin trading. For example, an investor purchases Rs. 100 worth of securities, with his own money of Rs. 50 (margin of 50%) and borrowed money of Rs. 50. If the price of the security goes up by 10%, he will earn a return of 20%.

Conversely, if the price falls by 10%, he will lose 20%. Thus margin trading exposes a client to the potential of higher gains / losses.

The Table 1 illustrates the amplification effect of margin trading. It assumes that the tenure of loan as well as the investment is one year. Two clients (I and II) have invested same amount of Rs. 100 in a securities portfolio, which provide similar returns. While client I has used his own funds only, the client II has used margin debt to the extent of 50%. If the portfolio returns 20%, the client I earns a return of 20%, while the client II earns 25%. When the portfolio returns 10%, client I and II earn 10% and 5% respectively. The client II gets higher return / suffers higher loss than client I because he has financed his portfolio partially by margin debt. Further, if the portfolio return exceeds the margin rate (interest cost), the client gets a higher return than the portfolio return. If, however, portfolio return is lower than the margin rate, the client gets a return lower than the portfolio return. Thus, it is profitable if portfolio return exceeds the margin rate. If portfolio return is lower than the margin rate, it is a losing proposition to do margin trading.

Table 1:

Profitability: Margin trading Vs. Self financing

Particulars	Client I		Client II	
	Return (20%)	Return (10%)	Return (20%)	Return (10%)
Self finance (Rs.)	100	100	50	50
15% Debt (Rs.)	0	0	50	50
Total (Rs.)	100	100	100	100
Return (%) from portfolio	20	10	20	10
Profits (Rs.)	20	10	20	10
Interest payable (Rs.)	0	0	7.5	7.5
Net profit (Rs.)	20	10	12.5	2.5
Return (%) to client	20	10	25.0	5.0

As mentioned earlier, margin trading amplifies the return in either direction. Any change in portfolio return causes a much higher change in the return for the client. Table 2 illustrates this. If the extent of margin is 50%, and the value of portfolio depreciates by 50%, the client loses 100% of his own funds. The workings in table 2 ignore interest cost which is usually high and compounded on

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daily basis. This means, if interest is taken into account, the client loses more than his investment. The value of portfolio will not fall below Rs. 50, as the lender would dispose off the securities at Rs. 50. If the value of portfolio changes by 10%, the return for the client changes by 20%. Change in value of portfolio by 20% causes 40% change in return for the client. Thus, if the portfolio consists of volatile securities, the client runs higher risk.

Table 2: Impact of changes in prices on profitability
(Amount in Rs.)

Own funds (Margin)	Margin Debt	Cost of Portfolio	Value of Portfolio	Surplus after repayment of debt	Profit / Loss	Return (%)
50	50	100	50	0	-50	-100
50	50	100	60	10	-40	-80
50	50	100	70	20	-30	-60
50	50	100	80	30	-20	-40
50	50	100	90	40	-10	-20
50	50	100	100	50	0	0
50	50	100	110	60	10	20
50	50	100	120	70	20	40
50	50	100	130	80	30	60
50	50	100	140	90	40	80
50	50	100	150	100	50	100

Further, the client gets different returns from the same portfolio if the portfolio is financed by different levels of margin. Assume that a client purchases Rs. 100 worth of securities which returns 20%. If the purchase is financed by own money of Rs. 50 and borrowed money of Rs. 50 (margin of 50%), the client would earn 30%. However, if margins were 25% and 75%, the client would earn returns of 50% and 23.3% respectively. Table 3 makes it clear that the lower the margin, higher is the amplification effect. Hence lower the margin or higher the amount of funds borrowed, the greater is the risk to client.

It is clear, thus, that the more volatile the price of the securities and the lower the extent of margin, greater is the amplification effect, and there is possibility of making larger gains or losses.

Table 3: Impact of different levels of margins on profitability

Particulars	Extent of Margin		
	25%	50%	75%
Self finance (Rs.)	25	50	75
10% loan (Rs.)	75	50	25
Total (Rs.)	100	100	100
Return (%)	20	20	20
Profit (Rs.)	20	20	20
Interest payable (Rs.)	7.5	5	2.5
Net profit (Rs.)	12.5	15	17.5
Return to client (%)	50	30	23.3

The lender has also a motivation. He earns interest on the funds at a rate higher than the bank rate. In case the lender happens to be the broker, which is often the case, he also earns higher brokerage on higher volumes of trades, that too, without any additional risk.

The market is benefited in terms of better price discovery and higher liquidity which help in better allocation of resources.

Mechanism

It is necessary to understand the mechanism to fully appreciate the risks. A client interested to do margin trading is required to sign an agreement with the lender of funds (usually the broker) to formalise the arrangement for margin trading. The agreement provides for the margin rate and the extent of margin. The margin rate is the prime lending rate / bank rate plus a mark up depending on exposure in the margin account. The interest is normally compounded on daily basis. The agreement provides for two types of margins, namely the initial margin and the maintenance margin. The initial margin is the portion of purchase value which the client deposits with lender of funds before the actual purchase. After the agreement, the client opens a margin account and deposits initial margin amount, based on which the lender executes purchase order on behalf of the client. The securities so purchased are kept as collateral with the lender. In addition to initial margin, the client is required to maintain a certain minimum equity in the margin account. The equity is nothing but the net value of portfolio, that is, the value of portfolio less the margin debt. This equity should be a certain percentage of the market value of securities. This percentage is called maintenance margin. If the equity is less than the maintenance margin, the client is called upon to bring in the shortfall. For example, assume that the initial and maintenance margins are 50% and 25% respectively. A client has bought securities for Rs. 100. The price depreciates by 40%. The value of portfolio reduces to Rs. 60. The equity becomes Rs. 10 (Rs. 60 - Rs. 50 (debt)), which is less than Rs. 15 (25% of the value of securities). The client is required to bring in Rs. 5. When the equity in the margin account falls below the maintenance margin, the lender makes a margin call. If margin call is not met, the lender can sell the collateral, partially or fully, to increase the equity. However, when price falls to an extent that the equity becomes zero, the lender, instead of making margin call, usually sells off the securities to recover the debt. If he waits and prices fall further, he would not be able to recover the debt from collateral. In the above example, the lender would make margin call, when the portfolio depreciates by 33.33%. If margin call is not met or if the equity reduces to Rs. 0, the lender sells off the collateral. If the minimum and maintenance margins were 50%, margin call will be made with smallest depreciation in the value of portfolio. The lender is not generally required to make a margin call or notify the client that the equity has reduced below minimum. It is for the client to find out for himself and

make payment accordingly. The client is required to repay the debt and interest as per agreement and till the full repayment is made, the collateral remains with the lender. In case he wants to sell the securities earlier, the proceeds go to the lender first to the extent of debt.

The Graph 1 presents the equity when the value of portfolio appreciates and depreciates and the time for margin call, assuming initial and maintenance margin of 50% and 25% respectively. When portfolio appreciates, there is no need to make margin call. There is also no need for margin call for depreciations upto 33.33%. If portfolio depreciated by 33.33% - 50%, the margins calls are made. If it depreciates by more than 50%, no margin calls are made and the collaterals are disposed off.

Graph 1:
Equity and Margin Call under Margin Trading

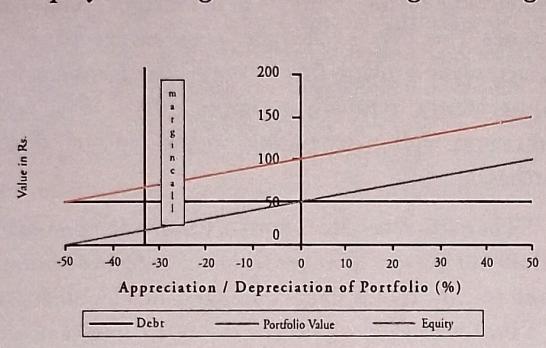


Table 4 presents the extent of depreciation required in a portfolio to warrant margin call. For example, if the initial margin is 60% and maintenance margin is 20%, the margin call will be made only when the portfolio depreciates by more than 50%. This is given by the formula: $(\text{Initial Margin} - \text{Maintenance Margin}) / (1 - \text{Maintenance Margin}) * 100$. Lower the maintenance margin, given initial margin, higher is the depreciation in value of portfolio required for margin call. Similarly, given the maintenance margin, higher the initial margin, higher is the depreciation in value of portfolio required for margin call.

Regulation

As mentioned earlier, the margin trading essentially involves lending/borrowing securities or lending/borrowing funds. Lending and borrowing of securities is an activity exclusively within the securities market. Hence the securities market regulator generally provides a regulatory framework for this. However, lending and borrowing of funds for securities transaction is an activity that transverses both the money market and the securities market. Hence both money market and securities market regulators jointly provide a regulatory framework for this.

Risks for Client

Leveraged portfolio generates an amplified effect for each rupee of investment. The higher the leverage, the higher is the amplification effect. Since markets can move in either direction, leveraging becomes a double edged sword. A client is likely to lose lots of money or gains lots of money when he transacts on margin. This amplification effect can be devastating when stock prices go down. Further the increase in risk associated with margin trading is compounded by the riskiness of the portfolio. A portfolio becomes risky if the prices of constituent securities are highly volatile or the portfolio is concentrated in a very small number of assets. Leveraging a risky portfolio may be asking for trouble at times. A client generally faces the following risks:

- The client is exposed to potential of higher loss.
- In falling market, the client may lose more money than he has invested.
- If the value of securities purchased on margin falls, the client has to provide additional funds to avoid forced sale of the securities.
- The client may have to deposit additional cash on short notice to cover market losses.
- The lender may sell some or all of the securities at the current price without consulting the client to pay off the debt to itself. The current price may not be the best price at which investor would have liked to sell.

Table 4: Level of Depreciation in Portfolio required for Margin Call

Maintenance Margin	Initial Margin											
	0.60	0.55	0.50	0.45	0.40	0.35	0.30	0.25	0.20	0.15	0.10	0.05
0.60	0.00											
0.55	11.11	0.00										
0.50	20.00	10.00	0.00									
0.45	27.27	18.18	9.09	0.00								
0.40	33.33	25.00	16.67	8.33	0.00							
0.35	38.46	30.77	23.08	15.38	7.69	0.00						
0.30	42.86	35.71	28.57	21.43	14.29	7.14	0.00					
0.25	46.67	40.00	33.33	26.67	20.00	13.33	6.67	0.00				
0.20	50.00	43.75	37.50	31.25	25.00	18.75	12.50	6.25	0.00			
0.15	52.94	47.06	41.18	35.29	29.41	23.53	17.65	11.76	5.88	0.00		
0.10	55.56	50.00	44.44	38.89	33.33	27.78	22.22	16.67	11.11	5.56	0.00	
0.05	57.89	52.63	47.37	42.11	36.84	31.58	26.32	21.05	15.79	10.53	5.26	0.00

Risks for Lender

Generally brokers lend funds to clients for margin trading. Some markets have special purpose vehicles which lend funds / securities. The regulatory framework generally focuses on to protection of the interest of lenders, not of the client or financiers to lenders. The requirement of initial margin, maintenance of margin, right to sell the collateral etc. protect the lender. The lender, however, needs to follow prudent risk management practices so as to ensure recovery of principal and interest and act swiftly to make margin calls or sell the securities in time. In the event of loss to a client, the loss to lender is limited to transaction cost that he would incur on selling the collateral, liquidity risk that he may not be able to sell the collateral and loss of interest on the margin debt.

Risk for Market

If the lenders have risk management systems in place and act swiftly, they do not carry any risk, except to the extent mentioned earlier paragraph. If they have no risk, the margin trading does not pose any risk to market. Besides, when the positions taken by brokers in cash / derivatives market are fully secured by adequate collateral, their involvement in margin trading as lenders do not affect the market integrity at all.

However, the margin trading has tendency to contribute to volatility and price manipulation. In case of rising market, the value of equity in the margin account rises, which enables a client to take still larger and larger positions. This fuels a continuous rise in prices. For example, a client holds a portfolio of Rs. 100, financed by margin debt with initial and maintenance margin rates of 50%. Let us assume that the value of portfolio increases to 160. The value of equity, thus, increases to Rs.110, based on which the client can hold a portfolio of Rs.220. This would enable him to buy additional securities for Rs.60. In case of falling market, the lenders liquidate positions to meet margin calls or to recover debt. This fuels a continuous fall in prices. This accentuating effect of margin trading is controlled by securities lending in case of rising market and by restrictions on short selling in case of falling market.

US scenario

The Federal Reserve Board and self-regulatory organisations, such as the NYSE and NASD, have rules that govern margin trading. Brokerage firms can establish their own requirements as long as they are at least as restrictive as the Federal Reserve Board (FRB) and SRO rules.

Before trading on margin, the NYSE and NASD, for example, require a client to deposit with the broking firm a minimum of \$2,000 or 100% of the purchase price, whichever is less. This is known as the "minimum margin." According to Regulation T of the FRB, the client may borrow up to 50% of the purchase price of securities and the client has to bring in balance 50%, which is called 'initial margin'. Some firms require the client to deposit more than 50% of the purchase price. This facility is available only for select securities.

After the client has bought the securities on margin, the NYSE and NASD require him to keep a minimum amount of equity in the margin account. The rules require the client to have at least 25% of the total market value of the securities in the margin account at all times. This 25% is called the "maintenance margin." In fact, many broking firms have higher maintenance requirements, typically between 30 to 40%, and sometimes higher depending on the type of stock purchased.

The SEC generally follows a hands-off approach. It does not prevent a broker from engaging in any fund based activity. It only limits the aggregate indebtedness of a broker towards all other persons to 1500% of its net capital.

It may, however, be noted that Regulation T is issued by FRB under the Securities Exchange Act, 1934 with the objective to regulate extensions of credit by brokers. It does not preclude any SRO or the broker himself from imposing additional requirements.

Indian Context

There was an apprehension that brokers would not be able to lend funds for margin trading in view of provisions in the Securities Contracts (Regulation) Rules, 1957. The Rules do not permit a broker to take up any fund based activity. This was examined by SEBI in 1997 and a view was taken that a broker can not lend funds as a regular business activity or lending of funds can not be his main activity. However, he can lend / borrow money if it is incidental to securities transactions. A clarification in this regard was issued in 1997 which permitted lending and borrowing of funds in connection with or incidental to or consequential upon buying, selling or dealing in securities. It was felt then that this clarification would enable brokers to take up incidental lending and borrowing of funds, including margin trading. In view of this clarification, some brokers are reportedly doing margin trading, though not in a significant way. Some other brokers, who are not

quite sure if incidental transactions cover margin trading, are avoiding it.

The market witnessed major reforms in 2001. The deferral products, such as MCFS, ALBM, BLESS etc. were banned and compulsory rolling settlement on T+5 basis was introduced in a big way in July 2001. The market participants apprehended that these reforms would drain the market of liquidity. It was, therefore, felt necessary to provide the facility of margin trading in more explicit and organised way. Since brokers are not generally well capitalised, it was considered necessary to make available a line of credit to them for margin trading. Based on the recommendations of RBI-SEBI Standing Technical Committee, RBI issued guidelines in November 2001 in this regard. It provides that the Board of each bank should formulate detailed guidelines for lending for margin trading subject to the following parameters: (i) The finance extended for margin trading should be within the overall ceiling of 5% prescribed for exposure to capital market. (ii) A minimum margin of 40% should be maintained on the funds lent for margin trading. The bank should put in place an appropriate system for monitoring and

maintaining the margin of 40% on a regular basis. (iii) The shares purchased with margin trading should be in dematerialised mode, under pledge to the lending bank. (iv) The bank's Board should prescribe necessary safeguards to ensure that no "nexus" develops between inter-connected stock broking entities/stockbrokers and the bank in respect of margin trading. Margin trading should be spread out by a bank among a reasonable number of stock brokers and stock broking entities. The Audit Committee of the Board should monitor periodically the bank's exposure by way of financing for margin trading and ensure that the guidelines formulated by the bank's Board are complied with. These guidelines are in continuation of RBI's general circular, which restricts loan to an individuals against security of securities upto Rs. 10 lakh (Rs. 20 lakh for demat securities).

Despite these enabling provisions, margin trading did not take off, at least formally, though newspapers report considerable amount of informal margin trading, supported by private funding. This calls for a review of the existing mechanism by the regulators for money market and securities market jointly.